

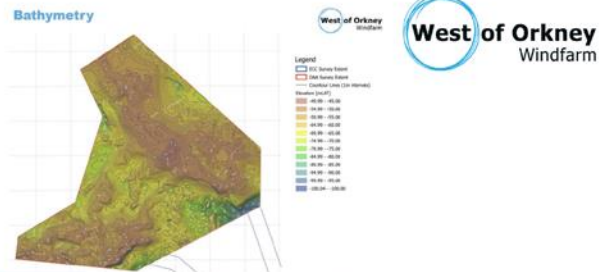
Offshore Wind R&I Programme Call Pack Two

As part of the Offshore Wind Research and Innovation Programme, EMEC, sponsored by the West of Orkney Windfarm, are looking to fund several projects. Projects in this innovation call must fall under at least one of the two identified themes: metocean conditions (call pack one) and/or short weather window installations for offshore wind turbines (call pack two).

Design for short weather window installation

Background: The West of Orkney Windfarm is in a particularly exposed location, and relatively far from the main supply ports. A core challenge will be getting major components (XXL monopiles weighing 4,500t and pin pile jackets weighing 5,000t) transported to the site from the various suppliers, and then installed, integrated, and commissioned. Vessel choice, supply-chain logistics and storage, and weather prediction, analysis and learning all have a significant part to play, and designing for short weather window installation will be key to maximising the number of opportunities to carry out essential construction and operations and maintenance (O&M) activities.

Project Overview



Wind Farm	2.25GW
Wind Turbines	Up to 125
Water Depth	50 to 70m: Dynamic Sea States
Foundation Types (Fixed)	Jacket / Monopile

Annual Hs(m)-Tp(s) distribution at SE1 - total wave - in %

Hs-Tp	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20-22	Total	
0-1	0.31	0.54	2.15	2.91	0.54	0.12	0.03	0.01	0.00		6.6	
1-2	0.03	2.79	4.41	15.91	10.18	2.11	0.58	0.16	0.04	0.00	36.2	
2-3		0.53	1.88	5.38	12.29	6.17	1.53	0.29	0.05	0.00	28.1	
3-4			0.00	0.38	1.80	4.95	5.88	1.90	0.38	0.05	0.00	15.3
4-5				0.02	0.28	1.90	2.95	1.64	0.40	0.04		7.2
5-6					0.00	0.70	1.35	1.11	0.36	0.01		3.5
6-7						0.11	0.69	0.59	0.24	0.01		1.6
7-8							0.28	0.31	0.11	0.01		0.7
8-9								0.07	0.19	0.07		0.4
9-10									0.01	0.07		0.1
10-11										0.03		0.1
11-12												0.0
12-13												0.0
13-14												0.0
Total	0.3	3.9	8.9	26.3	30.7	19.6	8.0	2.1	0.3	0.0	100.0	

Call aim: To maximise installation opportunities by streamlining requirements and processes, aligned with real-world methodologies, shortening required weather windows and allowing the highest probability of a successful operation.

Priorities: Your application must include/deliver:

- A comprehensive description of your innovation, the stage of the innovation (concept, prototype, demonstration, current deployment), how it compares to current practice, and how it addresses this specific innovation call.
- A description of how your innovation would be implemented in a windfarm project such as West of Orkney Windfarm, and how it would reduce the time, cost, or risk of delivering the project for the developing partners.
- A description and assessment of the use of the Scottish supply chain and an estimate of the likely Scottish supply chain content of the final product or service.
- Tailored solutions specific to the West of Orkney Windfarm. (Though applicability to other projects is welcome).
- Comply with the project timescales as set out in the Scope and Guidance Document.
- A statement explaining why grant funding is required for your innovation, and of any match-funding, in-kind, or other contribution that you are willing to contribute, as set out in the Scope and Guidance Document.

Applicants should demonstrate their knowledge of the transport and installation vessel market in their proposal.

Examples:

- Higher sea-state capability vessel solutions.
- Higher windspeed capability lifting equipment.
- High capability load-compensation equipment.
- Quick release and refix deck-clamping systems.
- Self-installing gear.
- Handling solutions for XXL monopiles up to 132m long and 13m diameter, weighing up to 4,500t.
- Installation solutions for pin pile jacket heights between 101m & 121m tall, weighing up to 5,000t.

Information provided: To support your innovation, we can provide the following information regarding the project and site on request:

- Overall project description
- Project site plan
- Bathymetry
- Metocean hindcasts, measurements and reports available to date

Additional information: If you feel there is more information that would be beneficial to inform your innovation that the West of Orkney Windfarm might already hold, please provide a detailed description to emec@offshoreinnovation.scot. If such information is not already held but is essential for developing your innovation, please provide where such information might be obtained/ at what cost and include this within your application.